

WHAT IS CLAIMED IS:

1. A process of manufacturing an optical waveguide for optically connecting a plurality of optical devices, comprising the steps of:

disposing a resin composition between two or more optical devices, the resin composition comprising a resin and a 1,4-dihydropyridine derivative,

forming an optical path through the resin composition between the optical devices by light having a wavelength capable of inducing a structural change in the 1,4-dihydropyridine derivative, and

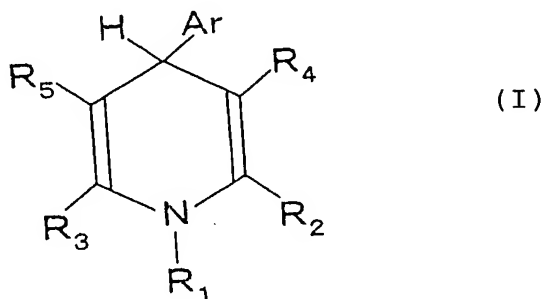
removing the 1,4-dihydropyridine derivative from the resulting resin composition.

2. The process according to claim 1, wherein the resin comprises at least one member selected from the group consisting of polyamic acid, polyimide and polyamide-imide.

3. The process according to claim 1, wherein the resin composition contains 0.1 to 30 parts by weight of the 1,4-dihydropyridine derivative per 100 parts by weight of the resin.

4. The process according to claim 3, wherein the resin composition contains 1 to 5 parts by weight of the 1,4-dihydropyridine derivative per 100 parts by weight of the resin.

5. The process according to claim 1, wherein the 1,4-dihydropyridine derivative comprises a compound represented by formula (I):



wherein Ar represents an aromatic group having a nitro group at the ortho position with respect to the bond to the 1,4-dihydropyridine ring; R₁ represents -H, -CH₃, -(CH₂)_nCH₃, -CF₃, -(CF₂)_nCF₃, -C₆H₅, -(CH₂)_nC₆H₅, -CH₂CH=CH₂, -OH, -OCH₃, -O(CH₂)_nCH₃, -OCF₃, -O(CF₂)_nCF₃, -OC₆H₅, -O(CH₂)_nC₆H₅, -COOH, -COOCH₃, -COO(CH₂)_nCH₃, -COCH₃, -CO(CH₂)_nCH₃, -(CH₂)_nOH, -(CH₂)_nCOOH, -NO_x, -F, -Cl, -Br or -I; R₂ and R₃, which may be the same or different, each represent -H, -CH₃, -(CH₂)_nCH₃, -CF₃, -(CF₂)_nCF₃, -OH, -OCH₃, -O(CH₂)_nCH₃, -OCF₃, -O(CF₂)_nCF₃, -COOCH₃, -COO(CH₂)_nCH₃, -COCH₃, -CO(CH₂)_nCH₃, -(CH₂)_nOH, -(CH₂)_nCOOH, -NO_x, -F, -Cl, -

Br or -I; R_4 and R_5 , which may be the same or different, each represent -H, -CN, -COOR₂, -COR₂ or -CONHR₂; n represents an integer of 1 to 4; and R_2 represents a hydrogen atom or an alkyl group having 1 to 6 carbon atoms.

6. The process according to claim 5, wherein R_1 is -H, -CH₃ or -(CH₂)_nCH₃, R_2 and R_3 each independently represent -H, -CH₃ or -(CH₂)_nCH₃, R_4 and R_5 each independently represent -COOR₂ or -COR₂, wherein R_2 is a hydrogen atom or an alkyl group having 1 to 6 carbon atoms and n is an integer of 1 to 4.

7. The process according to claim 5, wherein the 1,4-dihydropyridine derivative comprises at least one compound selected from the group consisting of 1-ethyl-3,5-dimethoxycarbonyl-4-(2-nitrophenyl)-1,4-dihydropyridine, 1-methyl-3,5-dimethoxycarbonyl-4-(2-nitrophenyl)-1,4-dihydropyridine, 1-propyl-3,5-dimethoxycarbonyl-4-(2-nitrophenyl)-1,4-dihydropyridine, 1-propyl-3,5-diethoxycarbonyl-4-(2-nitrophenyl)-1,4-dihydropyridine, 2,6-dimethyl-3,5-dimethoxycarbonyl-4-(2-nitrophenyl)-1,4-dihydropyridine, 2,6-dimethyl-3,5-diacetyl-4-(2-nitrophenyl)-1,4-dihydropyridine, and 1-ethyl-2,6-dimethyl-3,5-diacetyl-4-(2-nitrophenyl)-1,4-dihydropyridine.

8. The process according to claim 7, wherein the 1,4-dihydropyridine derivative comprises 1-ethyl-3,5-dimethoxycarbonyl-4-(2-nitrophenyl)-1,4-dihydropyridine.

9. The process according to claim 7, wherein the 1,4-dihydropyridine derivative comprises at least one of 2,6-dimethyl-3,5-diacetyl-4-(2-nitrophenyl)-1,4-dihydropyridine and 1-ethyl-2,6-dimethyl-3,5-diacetyl-4-(2-nitrophenyl)-1,4-dihydropyridine.

10. The process according to claim 1, wherein the resin comprises at least one member selected from the group consisting of polyamic acids, polyimides, and polyamide-imides.

11. The process according to claim 10, wherein the resin is fluorinated.

12. A connection structure of optical devices comprising:

two or more optical devices; and

at least one optical waveguide optically connecting the optical devices, the optical waveguide being formed by a process according to any one of claims 1 to 11.